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ABSTRACT

This paper describes two distance education courses on educational technology offered to the University of Wyoming by the University of Toledo (Ohio) and Florida State University. The first course, "Teaching Computer Courseware Design Using Audio Teleconferencing and Electronic Mail," is described by its professor, Dennis C. Myers of Toledo. This course was held via teleconference on Saturday mornings. Students responded using one of several microphones placed in the classroom. Homework was mailed to the teacher or sent via a statewide educational telecommunications network. The major disadvantage to this course was the lack of interaction between teacher and students. Because of the nature of the course, students performed exercises in class on computers. Problems had to be verbalized over the teleconference medium rather than seen in person by the teacher, as they would have been in a traditional classroom. The classroom environment also would have been improved by the presence of a coordinator, so that students who became bored would not leave. Advantages of the course include accessibility to a course and a professor not otherwise available. Taught by Robert A. Reiser from Florida State University, the second course is described in his essay, "Audio Teleconferencing and Surface Mail Videotapes--Lessons from a Personal History." Reiser provides a brief description of the course, Trends and Issues in Instructional Technology, then lists the lessons learned from the experience. These included difficulty in knowing who was speaking over the teleconference medium, difficulty in gauging students' reactions, necessary revision of course materials to fit the electronic medium, and scheduling logistics. Overall, both distance education experiences were deemed successful, with opportunities outweighing the frustrations with the medium. A student's perspective (Ellen Edwin) and a program unit coordinator's perspective (Landra L. Rezabek) are also provided. (DB)

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Distance Education: Perspectives From All Sides of the Desk

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Distance Education: Perspectives From All Sides of the Desk

Introduction

Distance education interests many educators and trainers. When considering the distance education option, questions concerning planning, equipment, facilities, and scheduling arise. In addition to these concerns are questions regarding needs assessment, faculty selection, faculty and student orientation to delivery systems, student expectations, faculty-student communication, and patterns of interaction. Less apparent are other special problems and concerns of the host program, of the students, and of the adjunct faculty.

Designed for anyone with a general interest in distance education, this paper will be of interest to those who may not have considered distance programs as an alternative to hiring full-time, on-campus faculty. Because it provides insights from all participants involved in a distance learning situation, it may help clarify some concerns for those who might be considering "jumping into" distance teaching and learning projects.

Background

The Instructional Systems and Library Science Program Unit at the University of Wyoming is continuously looking for ways to provide quality educational experiences for students while stretching limited financial and personnel resources. When Dr. Barbara Hakes, one of the two faculty members who traditionally taught instructional technology courses, was suddenly transferred to a one-year administrative position, the program unit was left without an instructor but was awarded funds to secure a temporary replacement. Instead of hiring an individual for one year, the program unit chose to use the funds to engage in an experiment in distance teaching and learning.

Because the University of Wyoming program is maintained by a small teaching faculty and is in a fairly isolated location, the program unit members chose to extend students' contact with professionals in the field by inviting noted faculty from other institutions to serve as temporary visiting professors. However, because of their regular university appointments at other institutions, the visiting faculty would teach their courses from a distance. After soliciting student input regarding the types of course content that would be of greatest interest, Dr. Dennis Myers from the University of Toledo and Dr. Robert Reiser from Florida State University were contacted and agreed to teach courses during the 1990-91 academic year. The following describes the successes and frustrations encountered by the visiting faculty, the students, and the program unit coordinator while engaging in this distanced teaching and learning opportunity.

Instructor Perspectives

Dennis C. Myers: Teaching Computer Courseware Design Using Audio Teleconferencing and Electronic Mail

Myers taught two teleconference courses during the 1990-91 academic year. The Fall course was an introduction to computer courseware design and the Spring semester offering was an advanced computer courseware design course. Being "hands-on, learn by doing" courses, they both focused on three general areas: Instructional Development, Computer Courseware Design, and HyperCard. Students developed desktop presentations, information exploration materials, and linear tutorials in the first course. Criterion-referenced assessment (on-line testing) and complex tutorial systems were the projects for the second course.

Myers and the program unit members discussed the general goals of the course that the University of Wyoming faculty envisioned and he was invited to teach the course. They also discussed the general delivery system parameters: sites, lab configuration, schedule, etc. Most of the follow-up

arrangements were made with Dr. Landra Rezabek, the Program Unit Coordinator. During the first course, two of Landra's graduate assistants served as coordinators. One of the students assumed this role for the second course.

Myers agreed to teach long distance because he had taught the proposed courses several times on his own campus. He was confident that he could adapt those courses to the teleconference format. In addition, he was the co-author of the textbook the courses would use (Myers & Lamb, 1990). Therefore, with respect to the instructional goals and the content, he was confident that he could offer a reasonable and respectable course. Further, in the event that unforeseen technical difficulties should arise, he was confident that existing print materials were sufficient for students to achieve the goals of the course.

Myers made two visits to the Laramie campus. The first visit was in early September during the first week of the semester. He arrived on Thursday and returned to Toledo on Sunday. Thursday and Friday were spent getting acquainted with key people and the campus facilities. The course began on that Saturday -- the one and only time during the semester that everyone was together in the same room at the same time. The purpose of the first session was to get to know each other, assess entry skills, and get started working at the computers. Pictures were taken so Myers could associate faces with names during future teleconference sessions.

All classes were held on Saturdays from 9 a.m. - 12 p.m. Wyoming time (11 a.m. - 2 p.m. in Toledo). Myers spoke into the telephone handset from his University of Toledo office and conversations were then transmitted to two sites in Wyoming. One site was a micro-computer lab on the University of Wyoming campus in Laramie and the other was in a school in Saratoga -- a site over 100 miles from Laramie. Class discussions take place as they do in regular classes except participants can't always see to whom they're talking. Students could respond at any time using one of the several microphones placed in the room. Students either mailed their work to Myers or posted it on a state-wide educational telecommunications network -- WyNET -- which Myers then accessed with his computer and downloaded to his office computer.

The Introduction to Computer Courseware Design class provided students with a hands-on experience in planning, developing, and evaluating computer-based instructional materials. Most of the time students worked on their computers as Myers instructed them over the phone. Using an audio teleconferencing system meant that Myers could not see his students' screens. Several students found this aspect of teleconferencing troublesome. For example:

> Teleconferencing was a questionable format for this course -- instructor frequently needs to see Ss screens to help solve problems. -- Karen

> Trouble shooting stacks over the phone may have been the weakest link in the teleconference format. Actually seeing the problems that people were having and then providing instant feedback is very important. Knowledgeable people need to be available at this end of the phone. Fortunately they were. -- Steve

Although one teaching assistant (experienced Mac user and knowledgeable in HyperCard) was available in Laramie (not for the three students in Saratoga), not being able to see students' work was as difficult for Myers as not being able to see their faces. And being deprived of the "non-verbals" of the classroom was the most troublesome aspect Myers had with teleconferencing. It was difficult to read student non-verbals in order to pace the class appropriately. When students were working at their computers and Myers was directing them through a task, he couldn't see their faces or their computer screens so he had to rely on their questions and comments to pace the session. In addition, the inability of the instructor to see the class gave students implicit permission to leave the room if a question was asked in which they were not interested. For example, at the end of the Fall semester, one student reported:

> Many people would leave in the middle of class to go to the restroom, get a drink, etc. I found this to be disruptive and a time waster. When the class was ready to go on, many people were gone which slowed us all down. -- Renee

Of course, if this phenomenon had been reported early in the course, adjustments could have been made. Although student feedback was elicited twice during the semester using an evaluation form, the instrument did not pick up this problem. On the positive side, what helped deter other course problems from developing was that Myers had taught a similar course before, which helped him anticipate problems.

Comments on logistics.

> I was glad to be able to mail my assignments because it eliminated a lot of pressure to hand them in at a particular time. – Abe

> I also got frustrated because I couldn't afford to call Dennis every time I had a problem. [I don't think she called at all. One implication for this type of comment is to provide free telephone access to the instructor. For example, issue a course calling card number to each student. Monitor its use every month. Have the instructor log calls to verify the billing.] – Renee

> I also have problems with MacKermit. I can get to the specialized bulletin but I can not send my files over to you. They told me it has something to do with the signals sent. Also, I have problems getting to a useable Mac (like everybody else). – Abe

> In class, I find it easier to raise my hand than to punch a button and talk into a mike. It's a quirk I have!! – Janet

Access to Dennis.

> I really didn't have too many problems with the class. It would have been nice to be able to walk in and talk to you a couple of times but since you were flexible on assignment due dates it worked out as I could wait and ask questions on Saturday.
> – Steve

> There were times when, if you were here I'd have liked to have seen you and talked about some project problems and how you felt about work handed in later than the due date. – Janet

Advice.

For courses requiring special equipment – like computers – make sure they are available when students can use them. For example, students need access to computers at night and on the weekends. They also need them for more than two hours at a time. Students also need access to a lab instructor attached to the course – someone who solves problems "like the instructor does" – in the context defined by the course's purposes and goals, and not in some way that confuses students.

Try to consider the effects of special events on your courses. For example, home football games may have been a distraction for several students. I think they left class before they should have in order to get to the game on time or to get good seats.

In conclusion, Myers would gladly participate in teleconferencing again and that he would encourage other faculty to do the same. It gives one an opportunity to work with students from another university. In turn their students have an opportunity to work with a faculty member from another university and take a course that isn't regularly available to them. On the whole, it benefits both universities and their students.

Robert A. Reiser: Audio Teleconferencing and Surface-Mail Videotapes – Lessons from a Personal History.

A. Description of the Course Delivered via Teleconferencing
   1. Title: Trends and Issues in Instructional Technology
      a. have taught course many times at FSU
      b. viewed very favorably by FSU students
   2. Focus: History, accomplishments, future directions of the field of IT
   3. Most course objectives fall in the verbal information domain
      a. example: summarize the results of media research
   4. Instructional materials for the course consist of a series of readings (approximately 50 journal articles, book chapters, etc.)
   5. Students are given study questions to guide their reading
   6. Class sessions focus on discussion of the readings
   7. Semester I taught it for Wyoming I also taught it at FSU
      a. very useful arrangement – as will be described later
   8. First three weeks (nine hours of instruction) I taught it at FSU without any personal contact with students in Wyoming
      a. they did receive syllabus, reading assignments during this period of time
   9. After first three weeks of the semester, I visited the Wyoming campus for one weekend
      a. Conducted 1 1/2 days (9 hours) of classes with Wyoming students getting them up to the same point in the course as FSU students
      b. also had opportunity to socialize with students outside of class
      c. Note: only five in the Wyoming class (18 at FSU)
   10. After my visit, videotaped each of my FSU class sessions and sent them to Wyoming so that they could view them
   11. Once a week Wyoming students and I would hold one hour audio teleconference to discuss the readings and the lessons they had viewed
      a. this combination of instructional activities (videotapes plus audio teleconferences) served as a fine substitute for live video teleconferencing (which wasn't logically possible)
   12. Was the course successful? Yes!
      a. Wyoming students performed very well in the course (they learned a lot)
      b. Wyoming students gave the course very positive ratings

B. Lessons Learned
   1. Two audiences can be better than one
      a. I tried a bit harder to entertain the students
      b. gave me more to talk about, more to talk to
      c. resulted in my revising lessons almost immediately, rather than a year later
      d. knowing they were being viewed by others, FSU students had a bit more of an incentive to perform well in class
      e. Wyoming students had a yardstick against which to measure themselves
      f. having to gear my instruction to two audiences (each with a different perspective) was a broadening experience for me – made me think more carefully about the nature of my instruction
   2. Short personal appearances are useful
      a. my visit to Wyoming helped establish a rapport with the students that otherwise would have been very difficult
   3. Sound and sight has its advantages
      a. it was difficult gauging the reactions of the Wyoming students without being able to see them
      b. sometimes it was difficult knowing who was speaking
      c. the FSU students were disappointed that they didn't get a chance to see the Wyoming students

4. Although they've heard it once, they want to hear it again
    a. I expected that the Wyoming students, having seen the tapes, would have lots of questions ready for me
    b. instead, they had very few; they preferred that I lead them through a structured "review" where I asked them a lot of questions about points covered in the lessons they had seen
5. Logistics can cause (minor) problems
    a. getting my course materials copied in Wyoming
    b. scheduling the nights we would hold the teleconferences
    c. videotaping
        - failure of the equipment on one or two occasions
        - difficulty obtaining equipment
        - difficulty setting up and operating equipment with minimal resources
        - getting the tapes to the students on time
6. Phones are Fine for Facts
    a. in general, the use of audio teleconferencing, as a supplement to videotape and print instruction, worked very well for teaching factual information
7. Once is not Enough
    a. I enjoyed doing it very much and I am eager to do it again

Student Perspectives: Ellen Edwin

Telecommunications has provided opportunities for educational interactions that otherwise would have never been. The opportunity to study content not offered currently at a particular university and to do so under one of the leaders in the field is, perhaps, the greatest advantage currently offered by this technology. There has been much written about the advantages and disadvantages of the contributions made by various telecommunication technologies to education (Saettler, 1990; Heinich, Molenda, & Russell, 1989). While all of the discussions have merit, the real pros and cons are best identified when you get involved with the technology yourself. Such was my undertaking during the 1990 fall semester at the University of Wyoming.

Through audio conferencing, I completed two classes taught by professors at other universities. The teaching strategy of each professor was quite different from the other. The content of each class demanded different formats. The first was primarily a "read and lecture" format. The second was a hands-on computer class. Some of the advantages and disadvantages were shared, but others were unique to the class size and content.

In the "read and lecture" class, the number of students was quite small. We met in a conference room around a table on which was on omni-directional microphone/speaker. One of the students dialed the professor's office number and class began. The hands-free speaker system used was conducive to normal class activities such as taking notes and following handouts. The small class load allowed the professor to interact with each student frequently and to provide immediate feedback.

The strongest disadvantage was the inability to see the professor, yet this disadvantage did not compromise the course content. Another disadvantage was the limited timeframe that the hardware and facilities were available. The professor was able to negate that disadvantage through established office hours during which students could call and talk (at their own expense) with the professor personally. The sending of assignments through the mail also proved to be less than efficient. The availability of a fax would have expedited this.

The computer class had some of the same disadvantages -- that of not seeing the professor and the limited use of hardware and facilities. Yet, the larger class size of more than twenty posed a noticeable problem. The strongest disadvantage for this situation -- more than twenty students at computer terminals -- was the waiting time students had before the professor could interact with their problem. Because the professor did not have access to the computer screens, the student was required to describe in detail the information on the screen and the actions taken by the student up to that point..

The telecommunications hardware used during the computer class was a "press and speak" type. This was not conducive to a computer-based learning environment where the hands are occupied. Not only did the student have to press a button and then speak into a microphone held close to the lips, but the microphone had to be shared by two or more students. This severely limited the interaction each student could initiate with the professor.

The advantage to this situation was, first, that the class was taught by a leader in the field who otherwise would not have been accessible by students at this university. Secondly, the dependency of students on other students and the comradery that was built are in line with the current thoughts on cooperative learning.

Both of these experiences were very positive for the students involved as demonstrated by the student evaluations completed at the end of the course. Both had obstacles that had to be worked through, but the prior experience of these professors with their course content quickly brought about satisfactory resolutions, putting the students at ease and focusing on learning and not the delivery systems. Never did the disadvantages or obstacles loom so large that the learning process was impeded.

I fully expect that, with the continual upgrades to audio conferencing hardware, the affordability of the current compressed video technology, and society's call for equitable education for all persons spurring continued research and development in communications technology, the list of advantages and applications for distance education will continue to grow. To be sure, the disadvantages will always be around. The disadvantages will change with the technology, but their impact on the learning process will be minimized through training and experience for the educators who will utilize the technology. In the nineties, it is expected that the disadvantages of using communication technologies will center around administrative concerns such as scheduling and budgets while classroom applications will strengthen because of training and exposure. As is the goal of the University of Wyoming's College of Education, one day very soon, through communication technology, "the learning environment will be everywhere" (Chaveau, 1990, p.157) and learning will truly be a lifelong experience.

Program Unit Coordinator Perspectives: Landra L. Rezabek

The greatest benefit associated with this experiment in distance education was the opportunity for students to interact directly with renown faculty in the field. Bringing in outside faculty expanded our students' exposure to new ideas and was particularly beneficial for a small, somewhat isolated program such as ours. However, hearing outside faculty stress the importance of basic principles and concepts that students had encountered in other classes in the program helped the students realize that the basics they had learned during their programs at a small school were the same basics taught at much larger institutions. This awareness led to a greater sense of confidence in the students and increased their appreciation for being part of the "family" of instructional technologists.

If only because of the benefits accrued to students, the experience with distanced teaching and learning was successful. But the faculty in the program unit also benefitted from having interaction with outside members in the field. Visiting professors provided validation for some of the aspects of our program that were working well and helped brainstorm remedies for some of the areas of the program that needed improvement. Though it was not the job of the visiting faculty to evaluate the program, they provided a valuable professional sounding board.

The greatest frustration encountered was the lack of both technical and human resources at the University of Wyoming campus. In retrospect, we probably should not have attempted to teach a course that required the use of Macintosh computers, because we had to "borrow" a Macintosh lab in the College of Engineering which precipitated a myriad of administrative and technical problems as well as severely limiting student access. The graduate student assistants and the class members themselves proved to be indispensable for the success of both courses. The distanced classes required a great deal of support and coordination, both on- and off-campus, which the program unit coordinator could not have accomplished alone. Mailing videotapes, distributing student tests and assignments, and taking care of administrative and technical details proved to be more time-consuming than had been anticipated, but

again, extra effort on the part of all involved resulted in valuable opportunities for students. It should also be noted that everyone involved in these experiences displayed positive attitudes and demonstrated their enthusiasm and flexibility which contributed significantly to the success of the courses.

It also should be noted that these courses were offered through the program unit and the College of Education, with unofficial assistance from the School for Extended Studies. Because the funding source originated in the College of Education, the program unit had primary responsibility for initiating, overseeing, delivering, and evaluating the courses, which is not normal practice within the University. The increased responsibilities for the program unit coordinator, however, were offset by the increased flexibility afforded to students and instructors. In the future, if arrangements could be made to transfer funds and to overcome some of the other existing barriers, offering courses through the School of Extended Studies would likely lessen the demands on the program unit coordinator.

Our program unit could have hired a one-year temporary visiting assistant to teach similar courses, and perhaps the program unit coordinator could have personally avoided some of the frustrations resulting from the distance courses. However, students benefitted by participating in this non-traditional teaching and learning situation in ways other than by mastering course content. By actually experiencing alternatives to face-to-face instruction, which in and of itself has merit for educational technology students, students became more aware of the importance of the principles of instructional design and also became more interested in distanced delivery systems. Their enthusiasm spread to other students and students in the distanced courses frequently referred to their experiences in distance courses during discussions in subsequent classes. In summary, though demanding a great deal of cooperation and coordination, the experience was a successful one for those involved. Should a similar opportunity arise again, distance classes are a viable and attractive option for our program unit.

Summary

In retrospect, the distance education option proved successful for those involved in this endeavor at the University of Wyoming. The lack of visual interaction and frustrations with the limitations of and access to hardware were the major complaints regarding the classes, but all involved with the courses agreed that the opportunities outweighed the barriers. Though problems and frustrations arose, and though instructors, students, and the program unit coordinator all have definite ideas how the courses could be improved in the future, the opportunities to engage in the distance education experience proved valuable for all involved.

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